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[Document title]

Specification

[Title of the invention]

Apparatus and method for producing logo data, and recording medium storing the method

[Detailed description of the invention]

[0001]

[Field of the invention]

The present invention relates to a logo data producing apparatus, a logo data producing method, and a recording medium for storing a computer program achieving this method for producing logo data to be registered in a printing apparatus (printer) that prints a logo.

[0002]

[Description of the prior art]

The prior art related to the present invention is described below using a POS system (point-of-sale system).

[0003]

POS systems that gather, accumulate, and analyze information relating to product sales in addition to the conventional cash register function of smoothly handling the exchange of money in conjunction with product sales are used in various industries, beginning with department stores, supermarkets, and other distribution and sales businesses. A POS terminal device has, for example, a host device for accumulation and analysis, a display device such as a line display, a scanner for reading product bar codes, a cash drawer (drawer), and a printer (POS printer) for printing receipts.

[0004]

In addition to the conventional items such as product names, quantities, product prices, and total amount, receipts printed from a POS printer can also be printed with graphic design characters presenting the store name, company name, or product name, for example, or a logo containing primarily image information such as a logo, product picture, or illustration. By printing an advertisement or such using this type of logo, the functionality of an advertising medium and sales promotion medium can be added to a receipt.

[0005]

The image data ("logo data" below) for printing these logos is large, and sending the logo data from the host device to the printer each time a receipt is printed affects printing speed. With this type of POS printer, therefore, the logo data is prestored inside the printer in order to eliminate sending the logo data and thereby enable high speed logo printing by simply reading a registered logo and printing it to the receipt during logo printing.
[0006]

In addition to conventional monochrome printers, color printers can also be used for a POS printer, and by using a color printer for color logo printing advertising with a strong visual effect can be expected. Compared with monochrome printing, however, color printing requires more time for processing as well as receiving and printing the logo data by the printer, and the printing speed is therefore generally slower. As a result, color printing has an even greater effect on printing speed.
[0007]

Furthermore, a POS terminal device must quickly register purchased products and complete the transaction process, and particularly high speed printing is required. POS terminal devices therefore use a method whereby the logo data to be printed is prestored (registered) inside the printer using a logo data registration device, and the registered logo data is then read and printed when a specific print command is received.
[0008]

By thus pre-registering logo data in the printer, it is not necessary to send the logo data from the host device, thereby not only enabling reducing the load on the host device but also improving the print speed because time is not consumed for data transmission.
[0009]

[Problem to be resolved by the invention]

The size of the printing paper, resolution, and communication parameters can also differ greatly according to the model of POS printer. More particularly, the colors of ink that can be used (referred to below as the "printable colors") in a color POS printer are limited, and the printable colors can differ according to the model. In order to appropriately print the logo data, it is therefore necessary to produce the logo data to be stored to the printer ("logo

data for printer registration" below) by adjusting the pixel count, color data, and other parameters of the original data ("source data" below) to conform to such model-specific printer specifications as the print resolution and the width of the printing paper used in the printer to which the logo data is registered. In order to produce logo data for printer registration according to the model-specific information for the printer, it is therefore necessary to input the model-specific data for the target printer, color reduction method, color assignments, and other specific settings as parameters of the process for producing logo data for printer registration. These settings include numerous items that must be individually defined, such as the printing paper size and printer resolution. Furthermore, even if the same logo data is registered to multiple identical printers, the same parameter content must be individually set for each printer, and this is a very time consuming, complicated process.

[0010]

Furthermore, once color printing becomes possible, it is also expected that product advertisements, coupons, service vouchers, and the like will be printed more often as logos using POS printers. Unlike a conventional store name or other such logo, logo data printed in such cases will likely be frequently updated and re-created according to the particular printing purpose. Being able to register new logo data as easily and quickly as possible, or being able to edit logo data, is therefore needed.

[0011]

Therefore, the present invention is directed to solving the above problems, and an object of the invention is to provide a logo data producing apparatus, logo data producing method, and a recording medium storing a computer program achieving the method for producing logo data for printer registration quickly and easily.

[0012]

[Means for solving the problem]

To achieve the above object, the following invention is disclosed according to the principle of the present invention.

[0013]

The essence of the present invention is that by providing means for prestoring such information as the paper size of the printer, the printing resolution, and printable colors as model-specific data, and

processing source data to produce logo data for printer registration by automatically setting parameters based on this model-specific data, logo data for printer registration can be produced quickly and easily. Aspects of the present invention are described below.

[0014]

A first aspect of a logo data producing apparatus according to the present invention is a logo data producing apparatus characterized by comprising input means for inputting model identification data for identifying a printer model, a source data capturing means for obtaining source data for producing logo data for printer registration, a model-specific data storage means for storing model-specific data for a printer, a data processing means for producing logo data for printer registration by reading model-specific data specified by input model identification data from the model-specific data storage means, and processing the source data based on the read model-specific data, and output means for outputting the produced logo data for printer registration.

[0015]

A second aspect of a logo data producing apparatus according to the present invention is a logo data producing apparatus characterized by further comprising a model identification data reading means for reading model identification data from the printer for identifying the model of the connected printer.

[0016]

A third aspect of a logo data producing apparatus according to the present invention is a logo data producing apparatus characterized by the data processing means image processing the source data width and resolution to match the width of paper used by the printer and the resolution of the printer contained in the model-specific printer data.

[0017]

A fourth aspect of a logo data producing apparatus according to the present invention is a logo data producing apparatus characterized by the data processing means image processing the component colors of the source data to match the printable colors of the printer contained in the model-specific data.

[0018]

A fifth aspect of a logo data producing apparatus according to the present invention is a logo data producing apparatus characterized

by in the output step outputting as a file adding a transmission program for sending to the printer and a registration command for storing to the printer to the logo data for printer registration, or an image data file.

[0019]

A sixth aspect of a logo data producing apparatus according to the present invention is a logo data producing apparatus characterized by the output means sending the logo data for printer registration and registration command to the printer, and directly registering the logo data for registration in the printer.

[0020]

A first aspect of a logo data producing method according to the present invention is a logo data producing method characterized by an input step for inputting model identification data for identifying a model of printer; a source data capturing step for obtaining source data for producing logo data for printer registration; a model-specific data reading step for reading model-specific data for a printer; a data processing step for producing logo data for printer registration by reading model-specific data specified by input model identification data from a model-specific data storage means, and processing the source data based on the read model-specific data; and an output step for outputting the produced logo data for printer registration.

[0021]

A second aspect of a logo data producing method according to the present invention is a logo data producing method characterized by further comprising a model identification data reading step for reading model identification data from the printer for identifying the model of the connected printer.

[0022]

A third aspect of a logo data producing method according to the present invention is a logo data producing method characterized by the data processing step image processing the source data width and resolution to match the width of paper used by the printer and the resolution of the printer contained in the model-specific printer data.

[0023]

A fourth aspect of a logo data producing method according to the present invention is a logo data producing method characterized by the

data processing step image processing the component colors of the source data to match the printable colors of the printer contained in the model-specific data.

[0024]

A fifth aspect of a logo data producing method according to the present invention is a logo data producing method characterized by the output step outputting as a file adding a transmission program for sending to the printer and a registration command for storing to the printer to the logo data for printer registration, or an image data file.

[0025]

A sixth aspect of a logo data producing method according to the present invention is a logo data producing method characterized by the output step sending the logo data for printer registration and registration command to the printer, and directly registering the logo data for registration in the printer.

[0026]

A first aspect of a recording medium according to the present invention is a recording medium characterized by recording a program having steps of the above-noted logo data producing method.

[0027]

[Description of preferred embodiments]

An embodiment of a logo data producing apparatus and logo data producing method according to the present invention is described below with reference to the accompanying figures. It will be noted that the following embodiments are shown by way of example only and shall not limit the scope of the invention. It will therefore be obvious to one with ordinary skill in the related art that various embodiments can be achieved using some or all of the elements described below, and that all such variations are included in the scope of this invention.

(First embodiment)

Fig. 1 is a function block diagram of a logo data producing apparatus 10 according to a first embodiment of this invention. Logo data producing apparatus 10 has a source data capturing means 11, model-specific data storage means 12, data processing means 13, output unit 14, settings input means 15, display means 16, and a main control means 17 for controlling these other functions.

[0028]

The source data of the logo data for printer registration is normally stored as a file to a hard disk drive or other storage device (not shown in the figures) separately provided externally to the logo data producing apparatus 10. When source data is specified, the specified source data is retrieved by the source data capturing means. The source data can be stored temporarily until generating the logo data for printer registration is completed, or can be stored for a longer period of time for greater convenience if logo data for printer registration is repeatedly produced from the same source data.
[0029]

The files storing the source data can also be stored in two formats. First are files created in a proprietary format (referred to herein as "ELF files") by a logo data editing system (not shown in the figures). Second are bitmap files and other common image files.
[0030]

A logo data editing system not shown in the figures can produce a single source data file containing multiple images and text data output as an ELF file.
[0031]

Model-specific data for plural different printer models is stored to the model-specific data storage means 12. When model identification data specifying a printer model is input, model-specific printer data corresponding to that model is read from model-specific data storage means 12 by data processing means 13.
[0032]

This model-specific data includes the name of the printer model, usable paper sizes (particularly width), printable colors, vertical print resolution, horizontal print resolution, communication parameters, as well as such communication parameters as the port, baud rate, bit length, parity check, and flow control.
[0033]

This preferred embodiment is described using a printer with two printable colors, referred to herein as the first color and second color. It will be obvious, however, that the invention can be applied to a printer with three or more printable colors, or to a printer only capable of monochrome printing.
[0034]

The data processing means 13 reads source data stored to the source data capturing means 11, and reads the model-specific printer data from the model-specific data storage means 12. It also automatically sets the color composition, size, and resolution, for example, of the source data based on the printable colors, paper size, printing resolution of the printer, and other parameters contained in the model-specific data. It also processes the source data according to the settings to generate logo data for printer registration. More specifically, this operation processes and adjusts the pixel count and color information, for example, of the data that will be the source image (the source data) according to the paper width, printer resolution, and other features of the printer that will store the data. For example, if the printing resolution of the printer is lower than the expected resolution of the source data, the printed image will be larger than the expected size if it is printed at the pixel count of the source data. In such cases the area of the printed logo on the receipt will be bigger than expected, and will differ from the placement of the original design. In addition, if the image based on the source data is designed for printing to the full width of the paper, it will not be possible to print the entire logo image. It is therefore necessary to reduce the image if the intended print resolution of the source data is different from the resolution of the printer. In this case a reduction process that considers the width of the printed paper is necessary. Furthermore, if the number of colors usable by the printer (printable colors) is two, it is also necessary to specify what colors in source data containing multiple colors are assigned to the first printable color and what colors are assigned to the second color. By including this specification as a default setting of the model-specific data, color assignments can be automatically set based on the model-specific data. A configuration whereby the default settings can be cancelled and the desired color assignments can be set is also possible in this case. By automatically determining the logo size and setting color assignments based on model-specific data as described above, a particular image process can be started immediately when, for example, it is desirable to change only the color reduction method for a part of the objects without changing the logo size. It is also possible to immediately start a desired process without inputting detailed settings in order to, for example, change the color

assignment for some objects or apply a halftone process or gray scale process. These processes are particularly useful when the basic logo image is completed but minor changes are desired. This is also extremely useful when registering the same logo data in multiple printers of the same model, eliminates the need to repeatedly input the same settings to each printer, and prevents a time-consuming, complicated task.

[0035]

Of the data read by the model-specific data storage means 12, the parameters for communicating with the printer, such as the port, baud rate, bit length, parity check, and flow control settings, are sent to the output unit 14 to set the logo data communication conditions. In addition, if an executable file as described below (a logo file containing a registration command) is produced by the output unit 14, the communication parameters are also included in the transmitted command set. Setting the printer communication parameters is complicated and requires specialized knowledge, and it is therefore particularly advantageous to be able to set the communication parameters automatically based on the model-specific data.

[0036]

The output unit 14 stores the logo data for printer registration produced by the data processing means 13 as a file (an "executable file" below) containing a command for saving to the printer, and a program for sending the logo data to a specific printer. The logo data is also bitmap format and stored as a bitmap file.

[0037]

The produced file is stored to output unit 14. A plurality of files can be stored to this output unit 14. Therefore, by repeating the above-described processing operation and producing logo data for printer registration, multiple files of logo data for printer registration containing logo data of different designs can be stored. It is also possible to produce logo data for printer registration for different types of printers from the same source data.

[0038]

By adding these various functions to this registration function, not only can logo data for printer registration be produced quickly and easily, but fast registration is also possible. As a result, it is

possible to eliminate the above-described settings operation that is complicated and must be frequently performed.
[0039]

(Second embodiment)

Fig. 2 is a function block diagram of a logo data producing apparatus 10 according to a second embodiment of the present invention. This logo data producing apparatus 10 additionally has a printer model identification data reading means 18 connected to the printer 19 via a communication cable 20. In the first embodiment the printer model is specified by inputting model identification data, but this model identification data can also be stored in the printer 19. The logo data producing apparatus 10 of the present embodiment has a model identification data reading means 19 for reading the model identification data stored in the printer 19 via communication cable 20.
[0040]

The main control means 17 identifies the model from the model identification data read by the printer model identification data reading means 18, and causes the data processing means 13 to read the model-specific data for that model from the model-specific data storage means 12.
[0041]

If the model identification data cannot be read by the printer model identification data reading means 19, model identification data can be input by the user as described in the first embodiment.
[0042]

In addition to a function for storing the logo data for printer registration as an executable file or a bitmap file as described in the first embodiment, the output unit 14 also sends via communication cable 20 the logo data for printer registration produced by the data processing means 13 and a command for storing it to the printer. It also has a function for storing the logo data for printer registration to the printer. This registration can be accomplished, as well as in the first embodiment, by connecting the logo data producing apparatus and the printer via a communication cable.
[0043]

The functions of the source data capturing means 11, data processing means 13, settings input means 15, and display means 16 in

this second embodiment are identical to those in the first embodiment. The communication cable 20 can be a serial cable, parallel cable, network cable, USB (Universal Serial Bus), or other data communication format. It will also be obvious that communication between the logo data producing apparatus 10 and printer 19 shall not be limited to a communication cable of this type, and connection can be made using a communication means such as a known wireless system, including IrDA or other infrared communication system, or wireless LAN technology using spread spectrum communication, for example.

[0044]

Fig. 2 shows a single printer connected to the logo data producing apparatus 10. A POS system, however, typically has multiple printers.

[0045]

In such cases all printers are connected using multiple communication cables to a single logo data producing apparatus 10, and when a model is specified the model-specific data corresponding to that model is read, processing is applied based on this model-specific data to, for example, adjust the resolution of the source data to the printing resolution of the printer, and the logo data for printer registration is produced. Furthermore, registration to a separate printer can be accomplished by again specifying the printer model.

[0046]

The first embodiment and second embodiment are separately described above, but unless otherwise specifically noted the following description relates to both the first and second embodiments.

[0047]

Fig. 3 is a function block diagram showing the functions of the data processing means 13 shown in Fig. 1 or Fig. 2 in further detail. The data processing means 13 has source data storage means 21, a resolution setting means 22, width setting means 23, size setting means 24, component color setting means 25, and logo data for registration producing means 26.

[0048]

For example, if the source data size and size of the printer paper are the same but the resolution of the source data is higher than the printing resolution, part of the logo data will be lost if this source data is printed without being processed. Conventionally,

therefore, settings have been input to prevent this from happening and print the logo data appropriately.

[0049]

A logo data producing apparatus 10 according to the present invention, on the other hand, makes these settings automatically and processes the image.

[0050]

The source data storage means 21 reads and stores the source data for image processing from the source data capturing means 11 (Fig. 1 or Fig. 2).

[0051]

The resolution setting means 22 processes the source data so that the resolution conforms to the print resolution defined in the model-specific data. The width setting means 23 adjusts the width of the source data to conform to the width of the paper used in the printer as defined in the model-specific data. The size setting means 24 drives image processing by the resolution setting means 22 and width setting means 23, combines the results therefrom, and applies a final image process to match the size of the source data to the size of the printer paper.

[0052]

The component color setting means 25 processes the colors of the source data to match the printable colors defined in the model-specific data. This image processing step applies to color reduction, brightness, and gray scale processing.

[0053]

Based on the image processed source data output from the size setting means 24 and component color setting means 25, the logo data for registration producing means 26 then produces the logo data for printer registration.

[0054]

Fig. 4 is a flow chart of a logo data producing method according to the invention.

[0055]

This logo data producing method has a source data capture step (S1) for capturing and storing the source data that will be the basis for producing logo data for printer registration, a model-specific data reading step (S2) for reading the model-specific data for the

printer, an image processing step (S3) for producing logo data for printer registration by reading the model-specific data from the model-specific data storage means and processing the source data based on the read model-specific data, and an output step (S4) for outputting the logo data for printer registration.
[0056]

Fig. 5 is a flow chart describing the model-specific data reading step (S2) in Fig. 4 in further detail.
[0057]

When source data capturing and storing in step (S1) are completed, the next step executed is determined based on whether or not a printer is connected to the logo data producing apparatus 10 (Fig. 1 or Fig. 2) (S21).
[0058]

If a printer is not connected (S21 returns no; equivalent to the first embodiment), the model identification data is input (S22). The main control means 17 (Fig. 1) then determines the printer model based on the supplied model identification data, and controls the data processing means 13 (Fig. 1) to read the model-specific data corresponding to that model (S23). Once reading the model-specific data is completed, control advances to step S3.
[0059]

If a printer is connected (S21 returns yes; equivalent to the second embodiment), the model identification data stored to the printer 19 (Fig. 2) is read by the printer model identification data reading means 18 (Fig. 2) (S24). The main control means 17 (Fig. 2) then determines the printer model based on the model identification data, and causes the data processing means 13 (Fig. 2) to read the model-specific data corresponding to that model (S25). Once reading the model-specific data is completed, control advances to step S3.
[0060]

Fig. 6 is a flow chart showing the image processing step (S3) in Fig. 4 in further detail.
[0061]

When reading the model-specific data in step (S2) is completed, image processing is applied by the data processing means 13 to adjust the width, resolution, and colors of the source data to the width of the paper used by the printer, the printing resolution, and the

printable colors, and the logo data for printer registration is produced (S31).

[0062]

The resulting logo data for printer registration is then previewed for the user, that is, a print image is presented in the main logo data editing screen (S32). The source data captured in step (S1) is also displayed in the main logo data editing screen.

[0063]

It is thus possible to confirm the print image of the logo data for printer registration, and determine if further image processing by manual settings or editing of the source data by a logo data editing system (not shown in the figures) is required.

[0064]

If all settings according to the model-specific data are completed, or if all settings for individual parameters such as color settings are completed (S33; no), the procedure moves to the output step (S4).

[0065]

If the user determines that further processing by manual settings or editing is needed (S33 returns yes), which is applied is determined by determining whether to edit (S35). If the user decides to edit (S35 returns yes), the user must confirm whether the source data is an ELF file (S36).

[0066]

If the source data is an ELF file (S36 returns yes), editing to change the size and colors of the source data is possible. In this case the logo data producing apparatus 10 (Fig. 1 or Fig. 2) is temporarily exited, and control passes to the logo data editing screen (not shown in the figures) of the logo data editing system. As noted previously, an ELF file can store both images and text in a single file, and both images and text can therefore be edited in a single file.

[0067]

When the edited source data is stored in the logo data editing system and operation of the logo editing system ends, the logo data producing apparatus 10 activates, control resumes from step (S31), image processing is applied to the source data, which was edited and

the content thereof changed, and new logo data reflecting the edited content is generated.

[0068]

If the source data is not an ELF file (S36 returns no), the procedure loops back to step S33.

[0069]

If the data is not edited (S35; no) the parameters for color reduction, brightness, gray scale, and other processes are set (S37), and image processing is applied based on those settings (S31). The printable colors can also be changed.

[0070]

Parameter input in step S37 and editing by the logo data editing system repeat until the user determines that it is no longer necessary to edit or apply settings to the logo data for printer registration produced in step S31, that is, until it is determined that the data can be output.

[0071]

Fig. 7 is a flow chart showing the output step (S4) in Fig. 4 in further detail.

[0072]

Whether to register the logo data for printer registration directly to the printer or first store it as a file can be selected in this step. This selection is made by determining whether to store the data as a file (S41).

[0073]

If saving the logo data as a file is selected (S41 returns yes), whether to save the file as an executable file or as a bitmap file can be selected (S42). This selection is made according to whether an executable file is selected (S42).

[0074]

If saving as an executable file is selected (S42; yes), the output unit 14 adds a command for registering the logo data to a printer and a program for sending the logo data (S43), save the result as an executable file (S44), and the process ends.

[0075]

If the user chooses to store the logo data as a bitmap file and not an executable file (S42 returns no), the logo data is converted to

a bitmap format (S45) by output unit 14, the converted data is saved
as a bitmap file (S46), and the process ends.
[0076]

Bitmap files and executable files can be image processed in step
S31 and stored by the output unit 14 in step S47 after being saved.
[0077]

If the data is not saved as a file, that is, storing to the
printer is selected (S41 returns no), the logo data for printer
registration and a command for registering the logo data in the
printer are sent by output unit 14 to the printer, the logo data for
printer registration is stored to the printer (S47), and the process
ends.
[0078]

Fig. 8 shows an example of the main logo data editing screen
according to the present invention.
[0079]

The main logo data editing screen 27 is presented on a CRT or
other display device (not shown in the figures) connected to the
display means 16 (Fig. 1 or Fig. 2).
[0080]

The main logo data editing screen 27 has a model-specific data
display part 28 for displaying the model-specific printer data, a file
name display area 29 for displaying the file name of the specified
source data, a reference button 30 for displaying a list of source
data files when pressed, a source data display area 31 for displaying
a preview of the source data, a print image display area 32 for
previewing the logo data for printer registration, that is, displaying
the print image, an image processing parameter selection area 33 for
setting processing parameters, and various control parts 34.
[0081]

The model-specific data display part 28 presents such items as
the model name related to processing in step S31, paper size (width),
the first printable color, second printable color, vertical printing
resolution and horizontal printing resolution, port, and such model-
specific data that must be set according to the port as the baud rate,
bit length, parity check, and flow control settings.
[0082]

When inputting settings in step S37, the colors are set in this model-specific data display part 28 if, for example, it is necessary to change the printable colors.
[0083]

The image processing parameter selection area 33 shows the settings used for image processing in step S31. It is also used to set parameters for the color reduction, brightness, and gray scale processes in step S37, and slider controls can be used to control the settings. The color reduction process can be controlled in three stages from "coarse" to "fine," corresponding in order from "coarse" to "fine" to simple color reduction, dithering, and error diffusion color reduction methods. Brightness can be controlled in five levels.
[0084]

If the source data is an image file, a check box (not shown in the figure) for running a process to adjust the source data to the width of the paper used by the printer is also displayed.
[0085]

The control buttons 34 include a new 35, edit 36, preview 37, test print 38, save to file 39, save to printer 40, and quit 41 button.
[0086]

The new 35 button is used to prepare new source data reflecting the paper size of the model-specific data read in step S23 or step S25 by the logo data editing system. As in step S38, the logo data producing apparatus 10 is temporarily exited in this case.
[0087]

The edit 36 button is used to edit source data in the ELF file format in step S38.
[0088]

The preview 37 button is used to preview the print image shown in the print image display area 32 in a separate window (not shown in the figures) in actual size.
[0089]

The test print 38 button is used to make a test print of the logo data for printer registration that was produced.
[0090]

The save to file 39 button is used to save the logo data for printer registration produced in step S42 to step S46 as a file.
[0091]

The save to printer 40 button is used to store the logo data to the printer in step S47.
[0092]

The quit 41 button is used to terminate operation of the logo data producing apparatus.
[0093]

Program functions of the above logo data producing method include an input control program module for controlling input of command signals needed to produce and register logo data for printer registration; a display control program module for controlling the display of information needed to generate logo data for printer registration and store the logo data to a printer; a model-specific printer data reading control program module for controlling reading the model-specific data for the printer; a source data capture control program module for controlling capturing the source data; a settings control program module for controlling producing logo data for printer registration by setting the source data to conform with the model-specific printer data; and an output control program module for controlling output of the produced logo data for printer registration.
[0094]

The logo data producing apparatus of this invention can be achieved using a general purpose computer or other data processing system. This could be achieved by, for example, causing a general purpose computer or other data processing system to read and execute the above-described program from a recording medium to which it is stored. A data storage medium recording the above described program is therefore included in the scope of this invention.
[0095]

It should be noted that not only can the above processing operation be run based on all parameters contained in the model-specific data, processing could be based on only certain predefined parameters with the user setting the remaining parameters for processing.
[0096]

It is also possible to turn the settings for all image processing parameters off, have the user set all parameters as in the prior art, and process the logo data according to these settings.
[0097]

[Effects of the invention]

As described above, the effects of the present invention are described below.

[0098]

Comprising a means for prestoring parameters such as the size of the printing paper used in the printer, the resolution, and printable colors as model-specific data, a logo data producing apparatus and logo data producing method quickly and easily produce logo data for printer registration by automatically processing source data based on the stored model-specific data and register the logo data for printer registration in a printer without using a logo data registration device, and reduce the burden on the user producing the logo. It also became possible to provide a recording medium storing a computer program for achieving this method.

[0099]

It is also possible to achieve a logo data producing apparatus according to the present invention by running the program stored to the recording medium of the invention on a general purpose computer or other data processing apparatus.

[Brief description of the drawings]

Fig. 1 is a function block diagram of a logo data producing apparatus 10 according to a first embodiment of the present invention.

Fig. 2 is a function block diagram of a logo data producing apparatus 10 according to a second embodiment of the present invention.

Fig. 3 is a function block diagram showing the functions of the data processing means shown in Fig. 1 or Fig. 2 in further detail.

Fig. 4 is a flow chart of a logo data producing method according to the present invention.

Fig. 5 is a flow chart describing step S2 in Fig. 4 in further detail.

Fig. 6 is a flow chart describing step S3 in Fig. 4 in further detail.

Fig. 7 is a flow chart describing step S4 in Fig. 4 in further detail.

Fig. 8 shows an example of a main logo data editing screen according to a preferred embodiment of the invention.

[KEY TO THE FIGURES]

10   logo data producing apparatus

11   source data capturing means

12   model-specific data storage means

13   data processing means

18   model identification data capturing means

21   source data storage means

22   resolution setting means

23   width setting means

24   size setting means

25   component color setting means

26   logo data for registration producing means

27   main logo data editing screen

28   printer data display area

31   source data display area

32   print image display area

33   image processing parameters selection area

[Document title]   Abstract

[Abstract]

    [Problem]

    To provide a logo data producing apparatus and logo data producing method that can produce logo data for printer registration to be stored in a printer easily without a complicated setup operation.

    [Means of resolution]

    Logo data for printer registration is produced by providing a means for storing the paper size of the printer, resolution, expressible colors, and other parameters as model-specific data, and processing source data by automatically setting parameters based on this model-specific data.

[Selected figure]   Fig. 1

TEXT IN THE FIGURES

FIG. 1

SOURCE   DATA   CAPTURING   MEANS   11

MODEL-SPECIFIC DATA STORAGE MEANS 12

DATA PROCESSING MEANS 13

OUTPUT UNIT 14

SETTINGS INPUT MEANS 15

DISPLAY MEANS 16

MAIN CONTROL MEANS 17

FIG. 2

SOURCE   DATA   CAPTURING   MEANS   11

MODEL-SPECIFIC DATA STORAGE MEANS 12

DATA PROCESSING MEANS 13

OUTPUT UNIT 14

SETTINGS INPUT MEANS 15

DISPLAY MEANS 16

MAIN CONTROL MEANS 17

MODEL IDENTIFICATION DATA READING MEANS 18

PRINTER 19

FIG. 3

FROM SOURCE/LOGO CAPTURING MEANS 11

SOURCE DATA STORAGE MEANS 21

RESOLUTION SETTING MEANS 22

WIDTH SETTING MEANS 23

SIZE SETTING MEANS 24

COMPONENT COLOR SETTING MEANS 25

LOGO DATA FOR REGISTRATION PRODUCING MEANS 26

TO OUTPUT MEANS 15

FROM MODEL-SPECIFIC DATA STORAGE MEANS 12 OR MAIN CONTROL MEANS 17

FIG. 4

PRODUCTION PROCESS

(S1) SOURCE DATA CAPTURE STEP

(S2) MODEL-SPECIFIC DATA READING STEP

(S3) IMAGE PROCESSING STEP

(S4) OUTPUT STEP

END

FIG. 5

MODEL-SPECIFIC DATA READING STEP

S21 CONNECTED TO PRINTER?

S22 SPECIFY PRINTER

S23   READ MODEL-SPECIFIC DATA

S24   READ MODEL IDENTIFICATION DATA

S25   READ MODEL-SPECIFIC DATA

RETURN

FIG. 6

IMAGE PROCESSING STEP

S31   PROCESS IMAGE, GENERATE LOGO FOR STORAGE TO PRINTER

S32   DISPLAY

S33   FINISHED SETTING PARAMETERS & EDITING?

--> OUTPUT STEP

S35   EDIT?

S36   ELF FILE?

--> EDITING PROCESS

S37   INPUT SETTINGS

RETURN

FIG. 7

OUTPUT STEP

S41   SAVE AS FILE?

S42   SAVE AS EXECUTABLE FILE?

S43   CONVERT TO EXECUTABLE FILE

S44   SAVE

S45   CONVERT TO BITMAP DATA

S46   SAVE

S47   STORE TO PRINTER

END

FIG. 8

SOURCE FILE   SHOW (B)

PRINTER DATA

      NAME

      PAPER WIDTH

      COLOR 1   BLACK

      COLOR 2   RED

      RESOLUTION

         VERTICAL

         HORIZONTAL

COMMUNICATIONS PARAMETERS

     PORT

     BAUD RATE

     BIT LENGTH

     PARITY

     FLOW CONTROL

ABC TRADING 31

ABC TRADING 32

PROPERTIES

     OBJECT   IMAGE 1

     HALFTONE

         COLOR REDUCTION

            COARSE   FINE

         BRIGHTNESS

            BRIGHT   DARK

     GRAY SCALE

         COLOR   BLACK

     FLOW <?>

NEW (N)

EDIT (E)

PREVIEW

TEST PRINT (T)

SAVE TO FILE (F)

SAVE TO PRINTER (R)

PRINTER NON-VOLATILE MEMORY MANAGEMENT (M)
QUIT